

# Preface

The healthcare delivery system in the United States is in crisis as noted by several scholars and practitioners. Runaway expenditures and problems with access and affordability of care are plaguing the industry. Several chronic diseases such as diabetes and hypertension consume a disproportionate slice of healthcare services. By some estimates, chronic diseases account for more than 70–75 % of direct healthcare costs. These figures are consistent with global trends which indicate that chronic disease management should be a key consideration for any healthcare system throughout the world.

Diabetes is one of the five major chronic diseases. It afflicts more than 20 million people in the United States and accounts for almost US\$ 100 billion in medical costs. The prevalence of diabetes in the United States and worldwide is increasing exponentially. This has led the WHO to now refer to diabetes as the silent epidemic.

It has long been established that technology may play a role in contributing to a more efficient delivery of care that may also assist in controlling costs. Given the exponentially increasing number of incidents predicted for chronic disease in general, and diabetes in particular, coupled with the fact that there exists no cure for patients once they contract a chronic disease, and that if the chronic disease is not well managed then it lead to complex and unpleasant secondary healthcare problems, it would appear prudent indeed to examine the benefits of a pervasive healthcare technology solution to facilitate superior chronic disease management.

Pervasive healthcare is an emerging research discipline focusing on the development and application of pervasive and ubiquitous computing technology for healthcare and wellness. Pervasive healthcare seeks to respond to a variety of pressures on healthcare systems including the increased incidence of lifestyle related and chronic diseases, emerging consumerism in healthcare, need for empowering patients and relatives for self-care and management of their health, and need to provide seamless access for healthcare services independent of time and place.

Pervasive healthcare may be defined from two perspectives. First, it is the development and application of pervasive computing (or ubiquitous computing, ambient intelligence) technologies for healthcare, health, and wellness management. Second, it seeks to make healthcare available to anyone, anytime, and anywhere by removing

locational, time, and other restraints while increasing both the coverage and quality of healthcare.

This book attempts to address the emerging area of pervasive health in a unique fashion. Not only is the field of pervasive health defined but the key management principles, most especially knowledge management, its tools, techniques, and technologies are introduced in order to show how superior pervasive healthcare delivery can be achieved. In addition, this book takes a sociotechnical, patient-centric approach which serves to emphasize the importance of a key triumvirate in healthcare management namely, the focus on people, process and technology. Last but not least, this book discusses in detail a specific example of pervasive health, namely the potential use of a wireless technology solution in the monitoring of diabetic patients. Specifically, it describes the journey from idea to realization and how such a solution contributes to superior chronic disease management.

Given the crisis currently US healthcare system is facing as well as the major dilemmas faced by numerous other healthcare systems throughout the world, the need for a book that proposes to demystify the new frontier of pervasive health and simultaneously offer a solution to facilitate superior chronic disease management could not be greater. We are confident that this book will play a pivotal role in designing and fostering research and understanding of pervasive health, its advancements, and the adoption and diffusion of superior chronic disease management. Moreover, we are confident that scholars, practitioners, those in the community who suffer from chronic disease as well as anyone interested to understand critical issues pertaining to better management of diabetes will find this book invaluable, informative, and enjoyable.

The Editors

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